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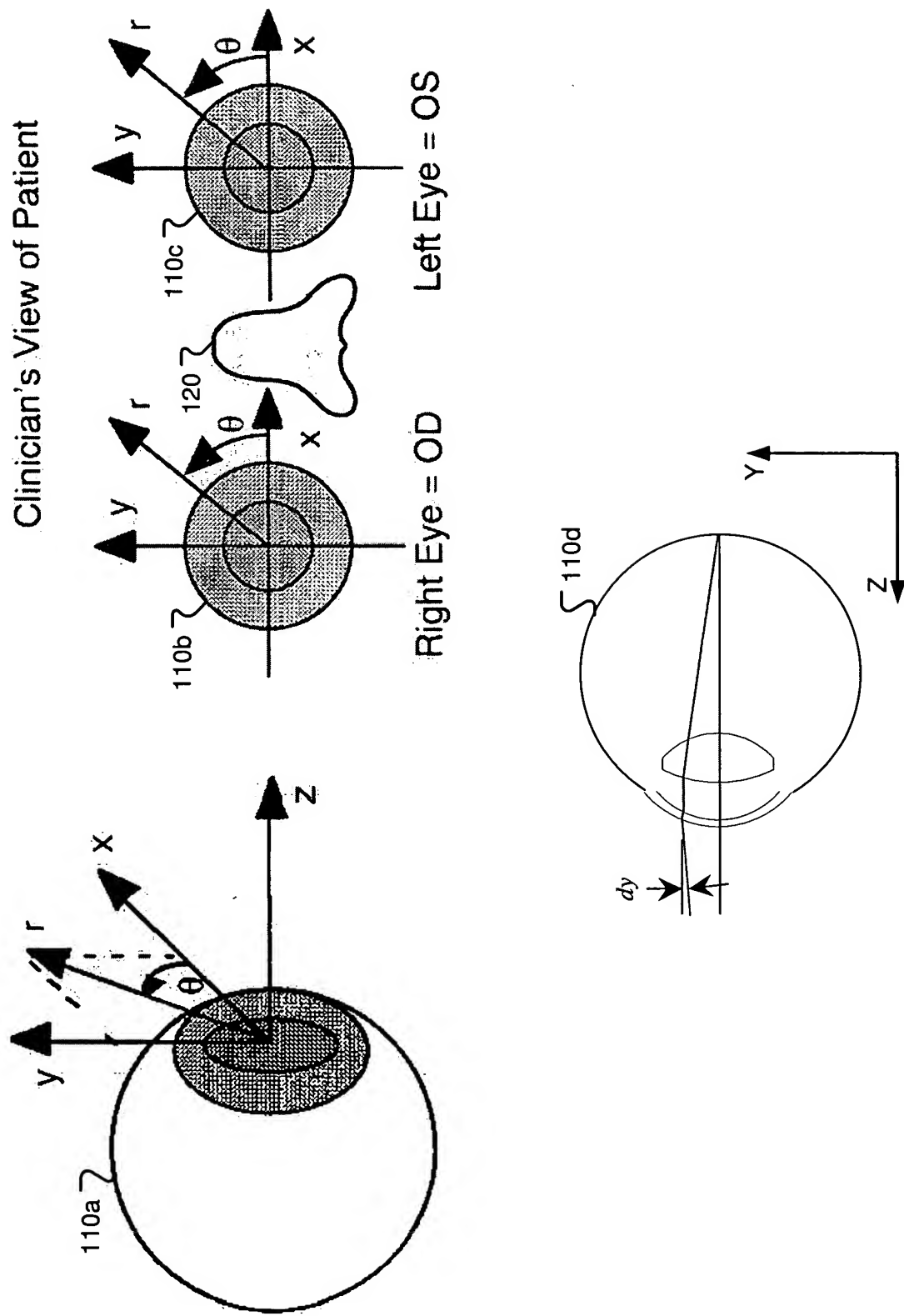


FIG. 1

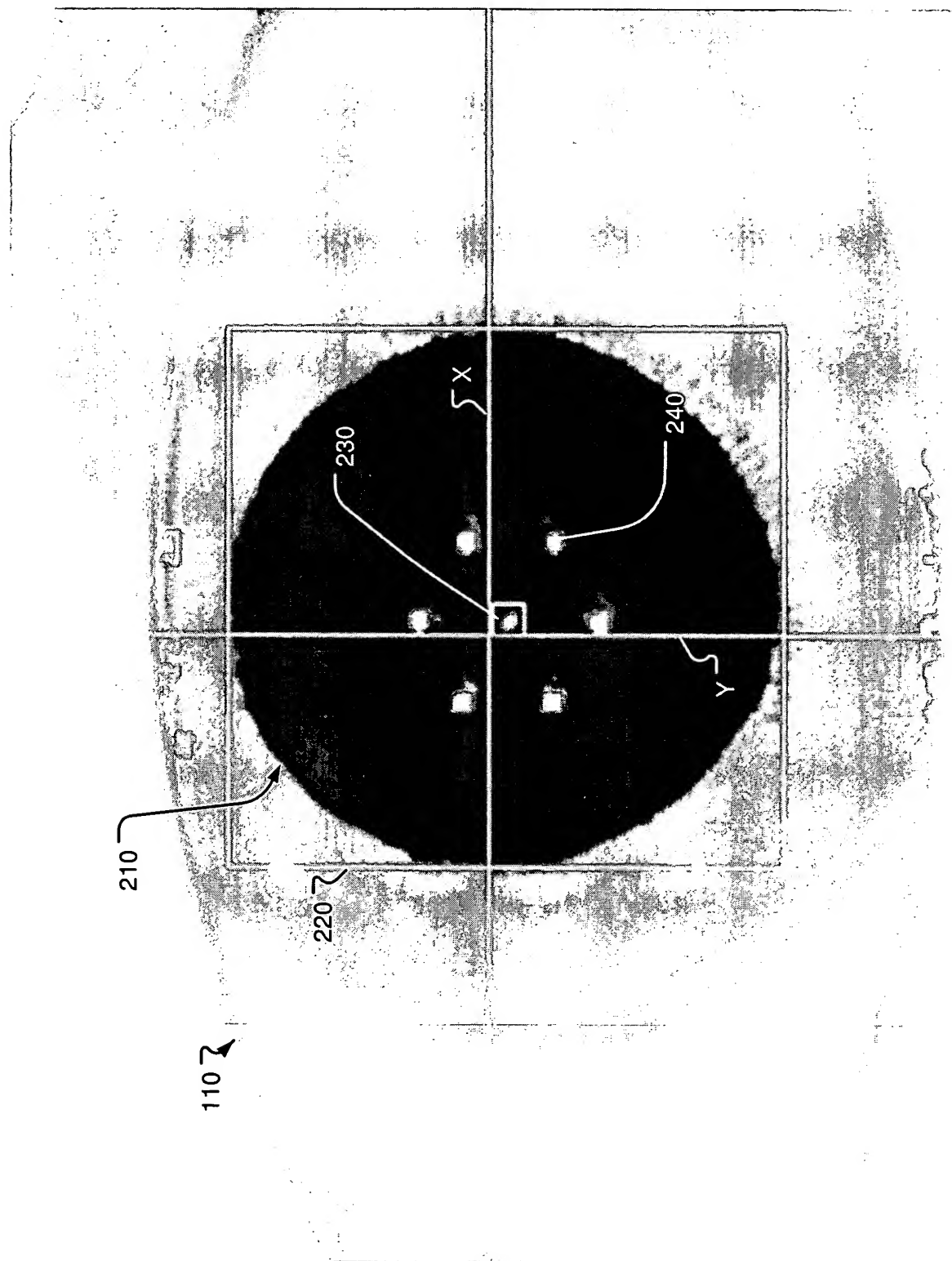
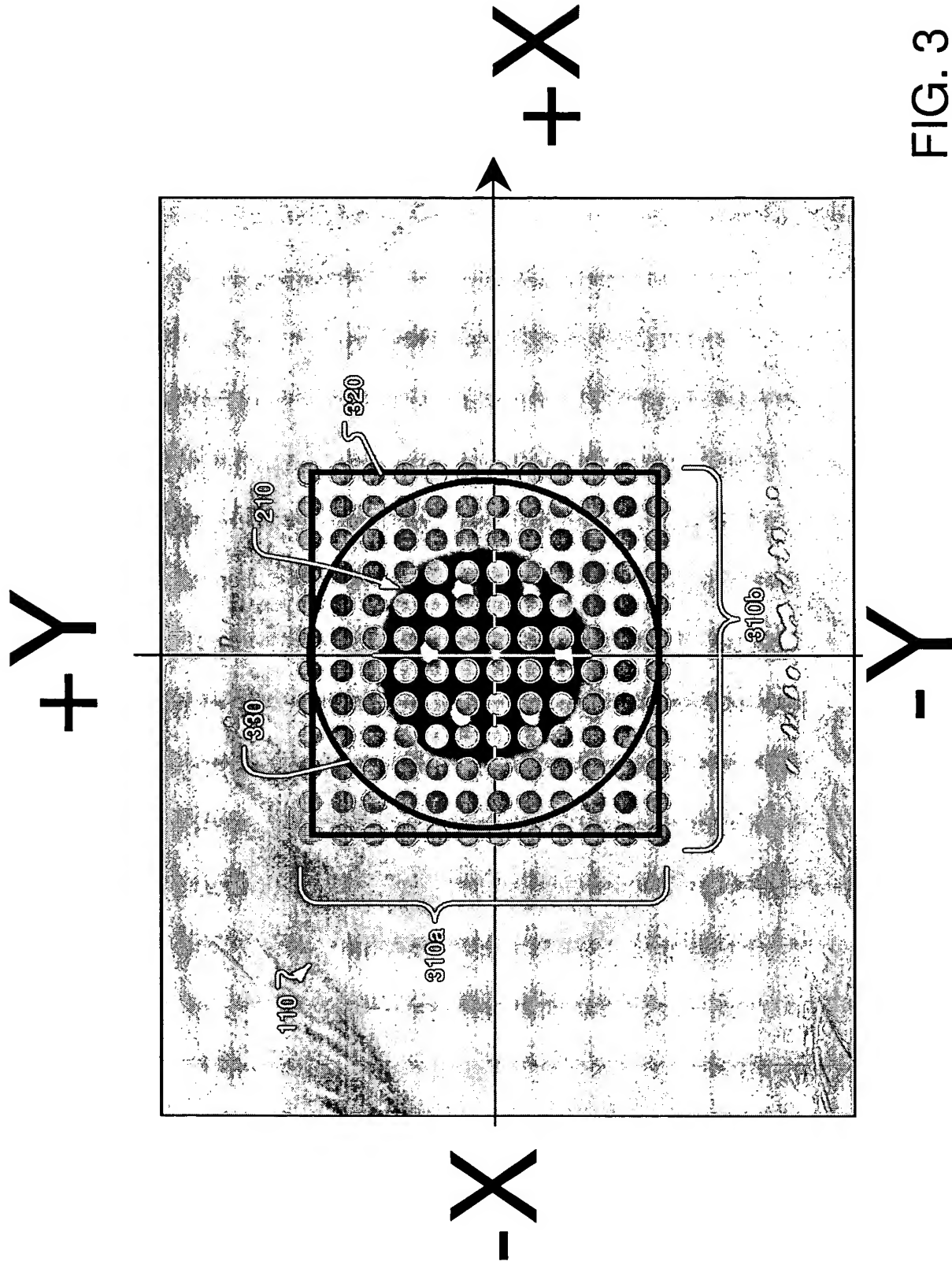


FIG. 2



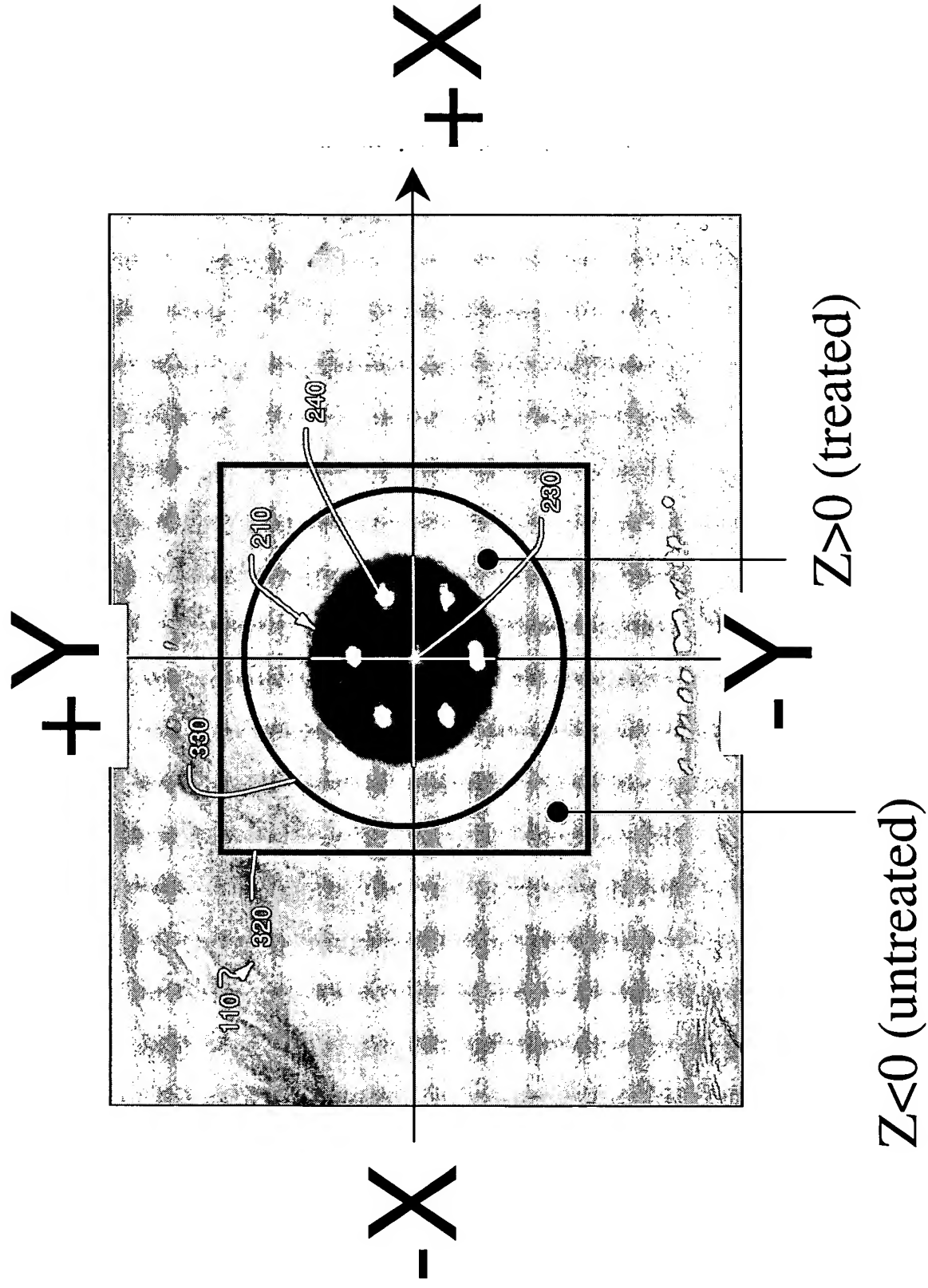


FIG. 4

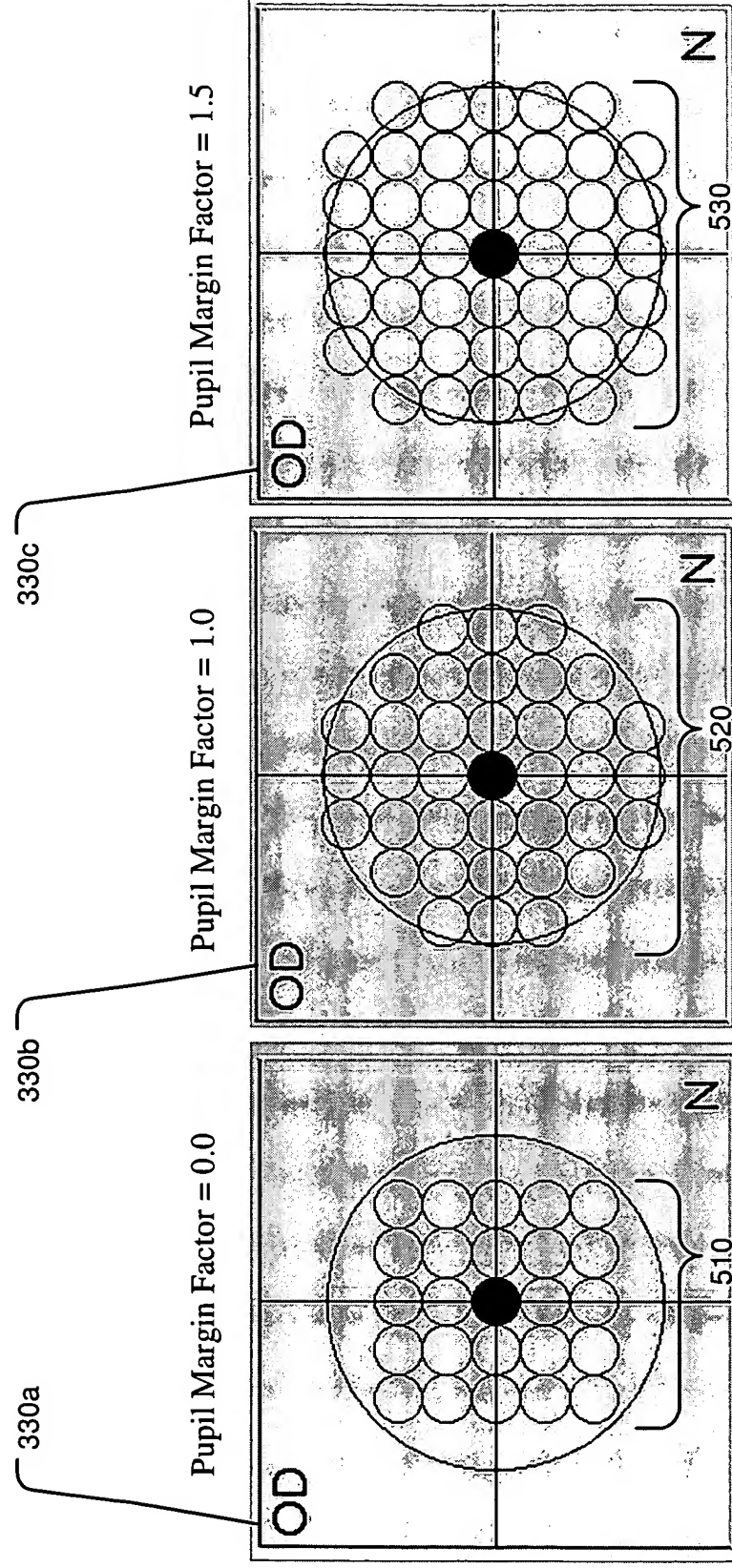


FIG. 5

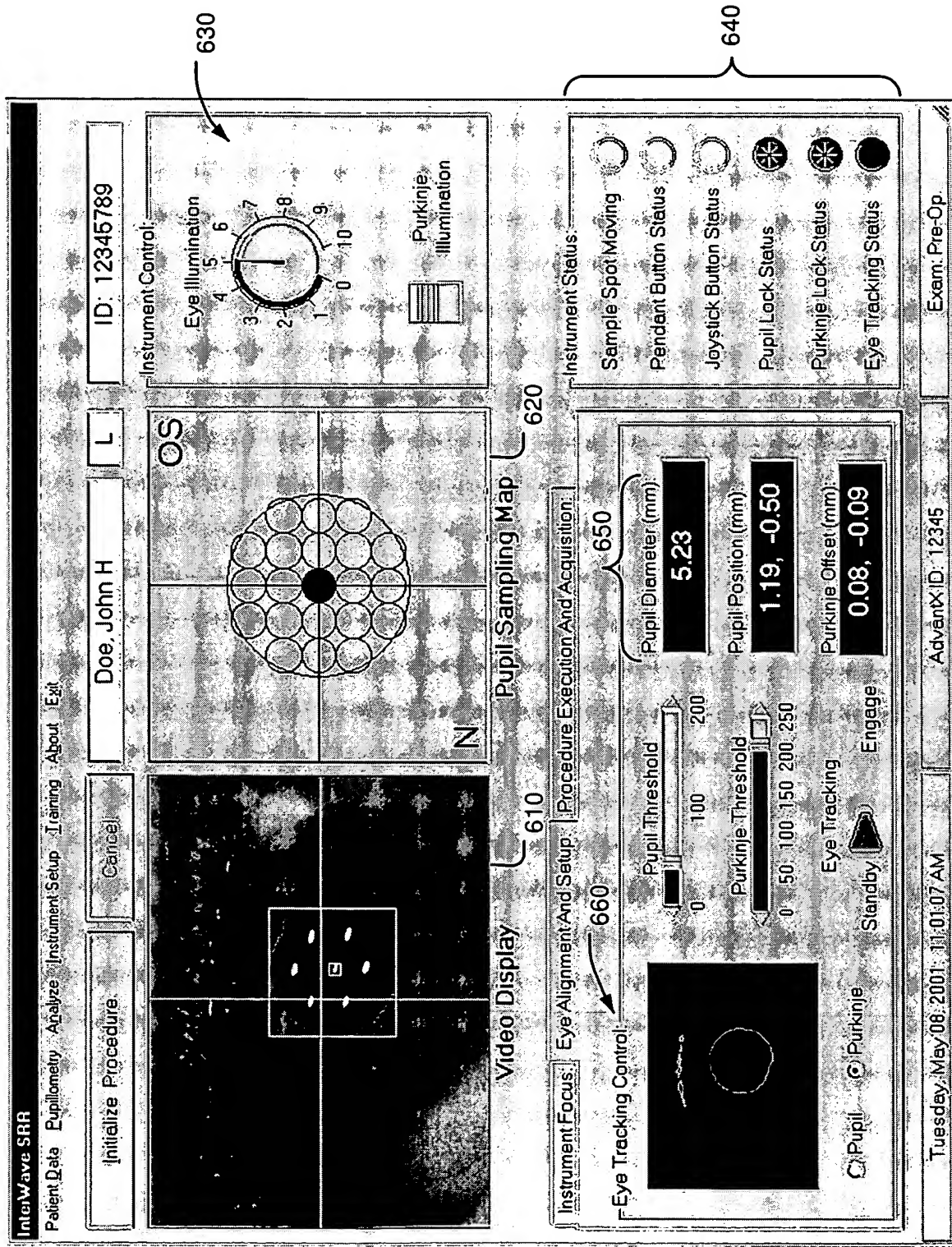


FIG. 6

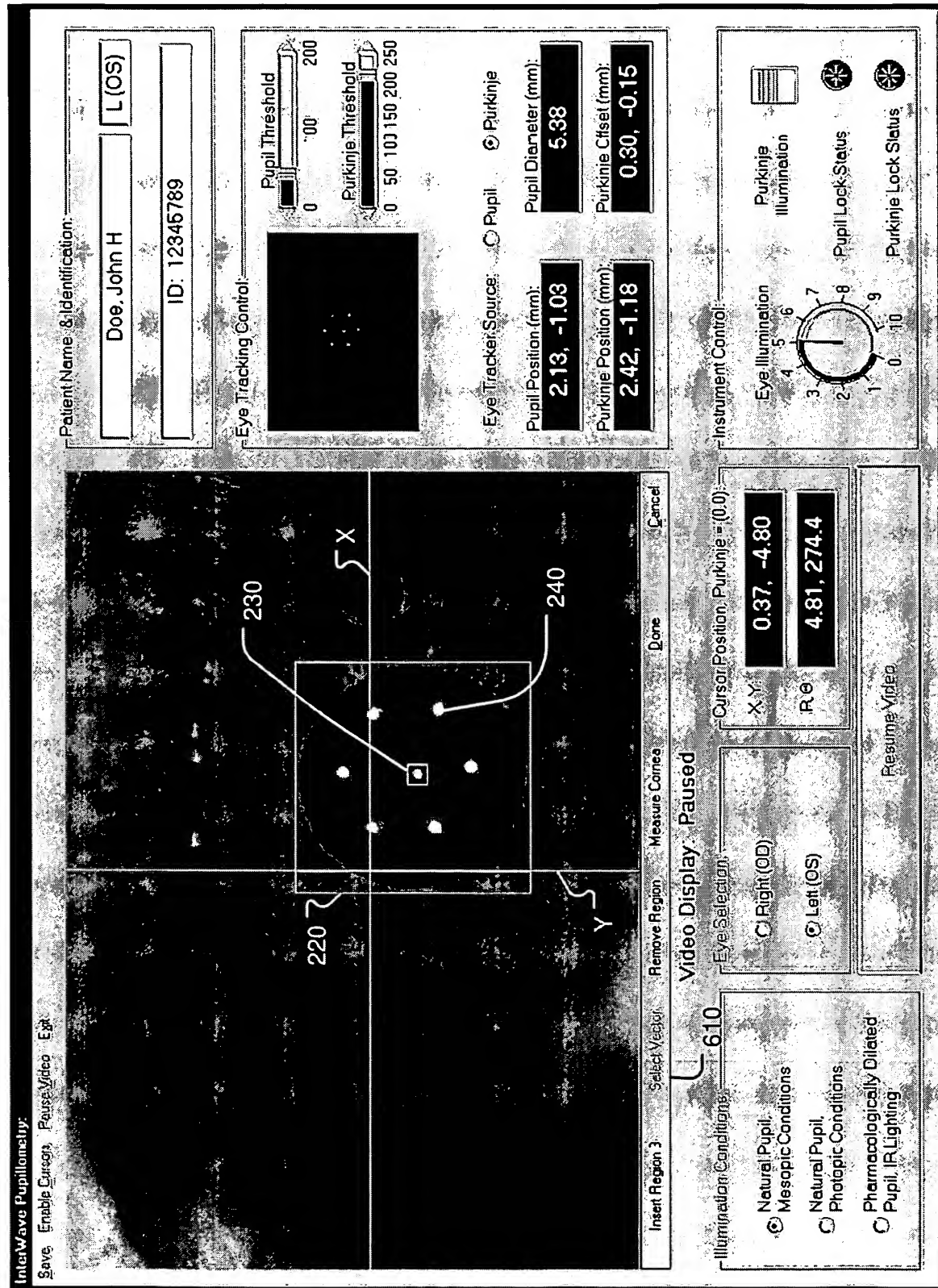


FIG. 7

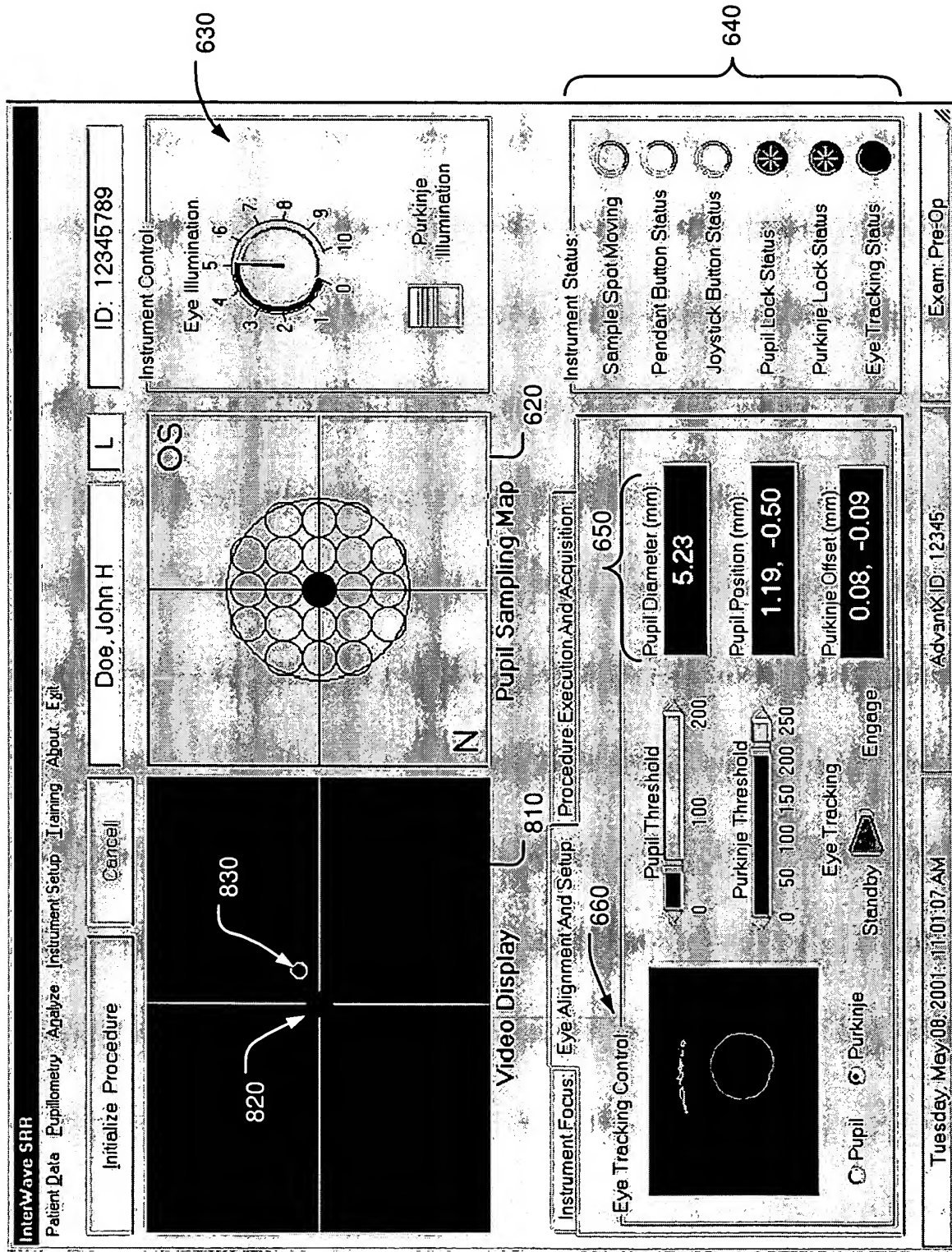


FIG. 8

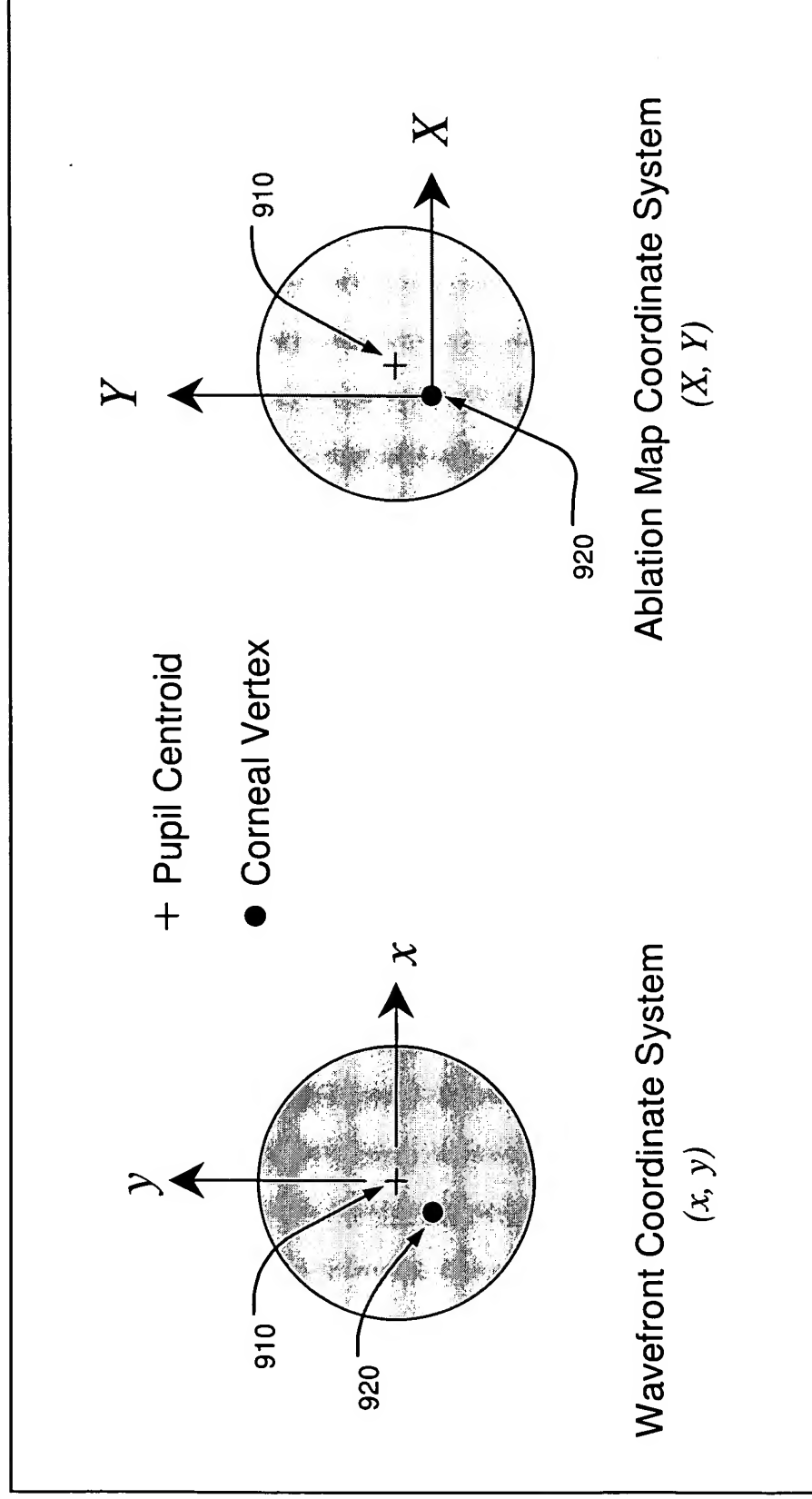


FIG. 9

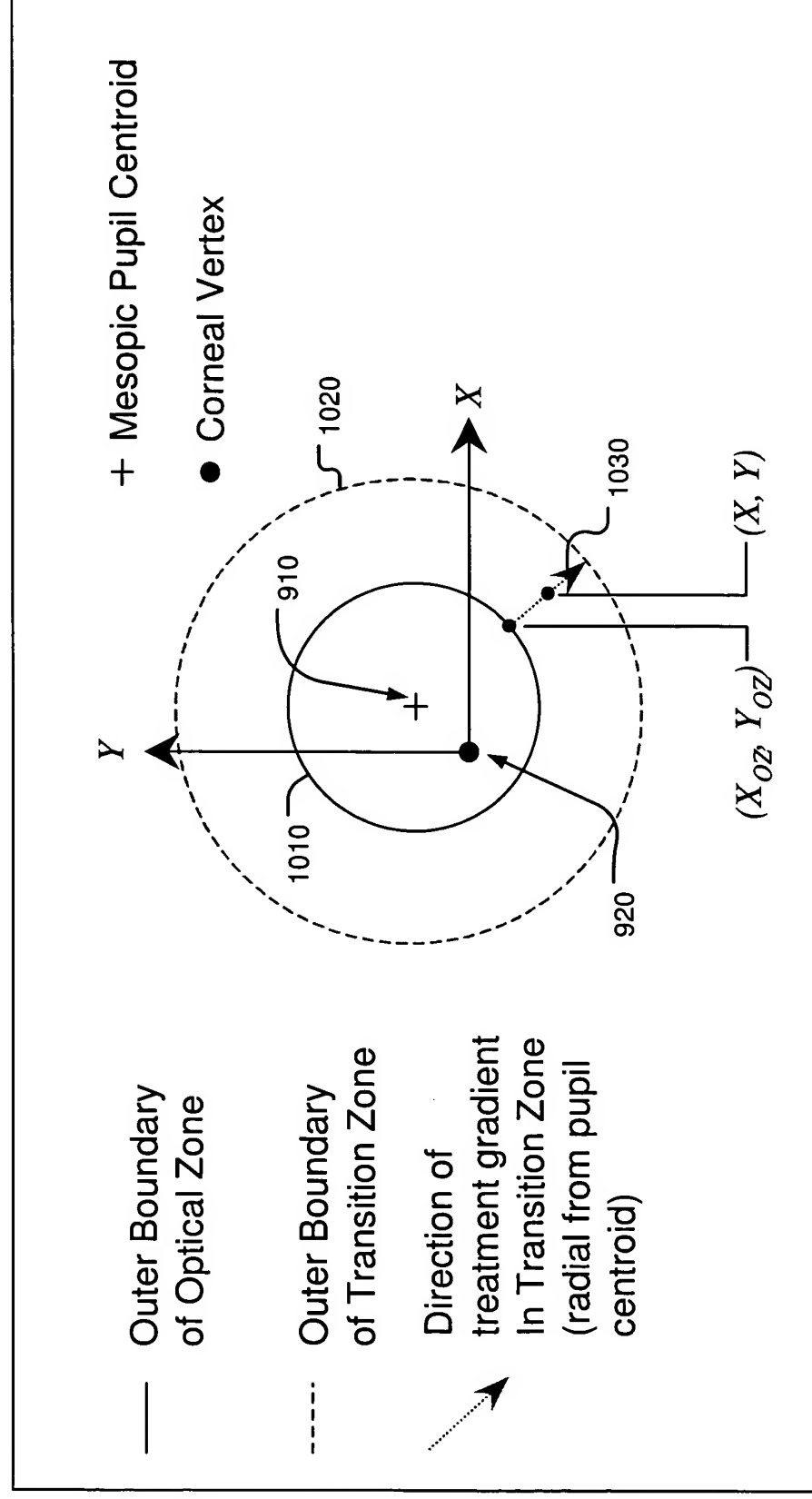


FIG. 10

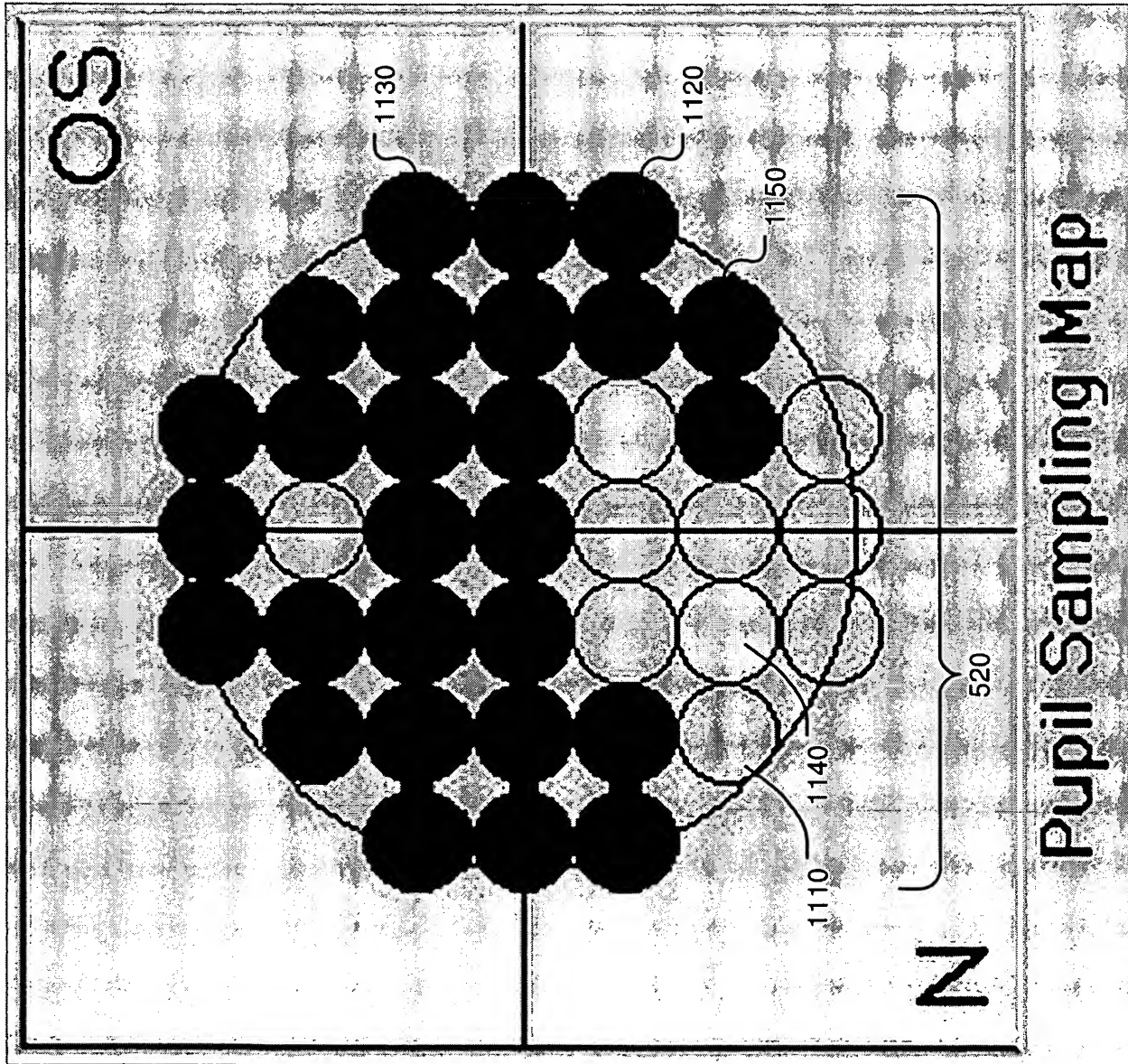


FIG. 11

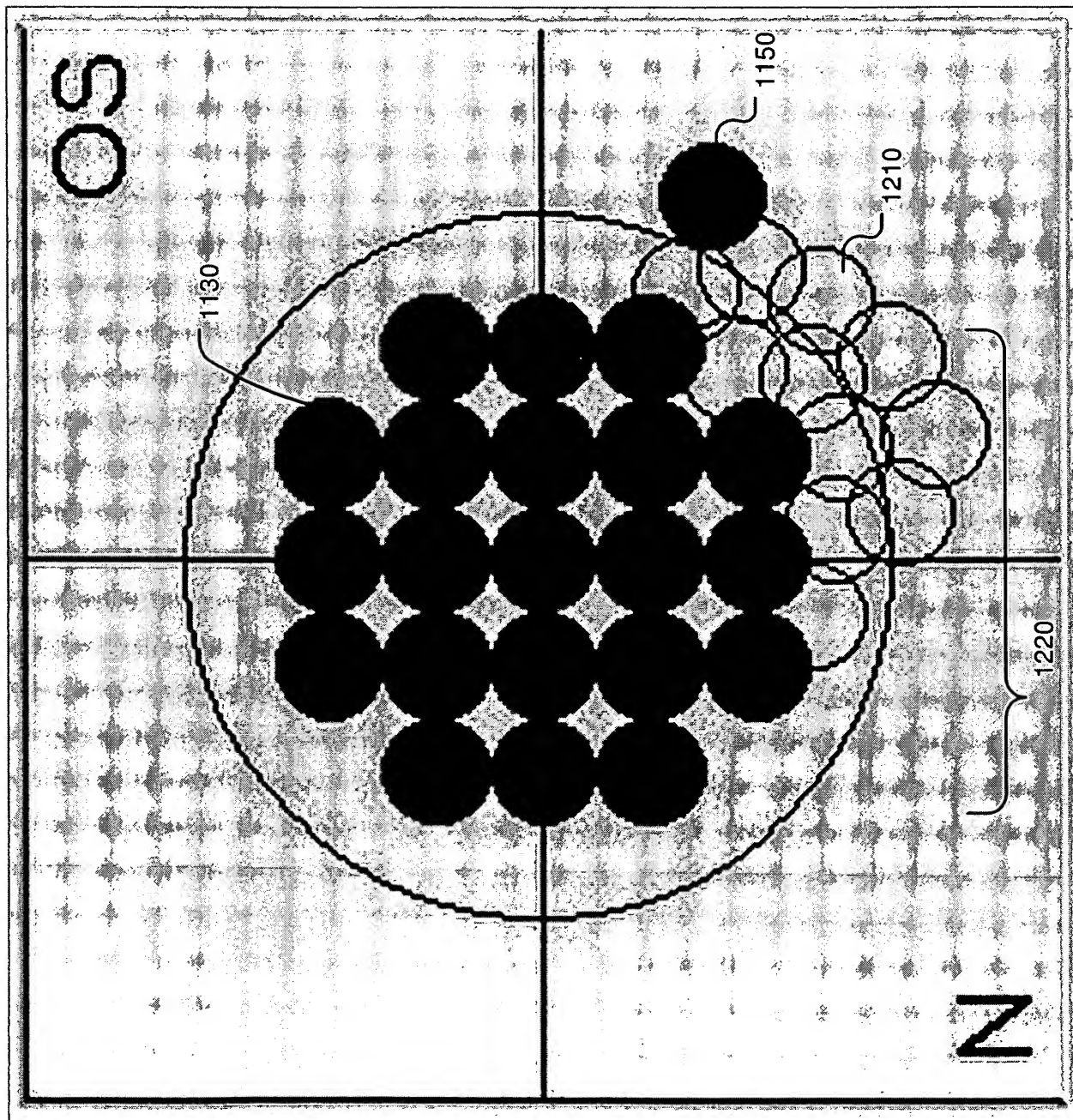


FIG. 12

Patient Data Entry:		<input checked="" type="checkbox"/> All Fields Are Read Only		AdvanX ID Number: <input type="text" value="12345"/>		Select Examination Type: <input type="text" value="Pre-Op"/>	
Patient Identification Number: <input type="text" value="12345789"/>		Gender (M/F): <input type="text" value="M"/>		Date of Birth: <input type="text" value="1"/> <input type="text" value="12"/> <input type="text" value="1949"/>		1305	
Last Name: <input type="text" value="Doe"/>		First Name: <input type="text" value="John"/>		Middle Name (Or Initial): <input type="text" value="H"/>		1310	
Manifest Refraction (Right Eye):		Manifest Refraction (Left Eye):		1320a		1320b	
Sphere: <input type="text" value="0.00"/>		Sphere: <input type="text" value="0.00"/>		Cylinder: <input type="text" value="0.00"/>		Cylinder: <input type="text" value="0.00"/>	
Axis: <input type="text" value="0.0"/>		Axis: <input type="text" value="0.0"/>		1340a		1340b	
1330a Run Right Eye (OD) (Default)		1330b Run Left Eye (OS)		1350a		1350b	
Find A Previous Patient		Find Old SPR Subject		Retrieve New Patient From AdvanX		Add New SPR Test Subject	
Last Name Or Patient ID: <input type="text"/>		Record Number: 193		Refresh		Delete	
Data Base Control:		1305		1310		1315	

FIG. 13

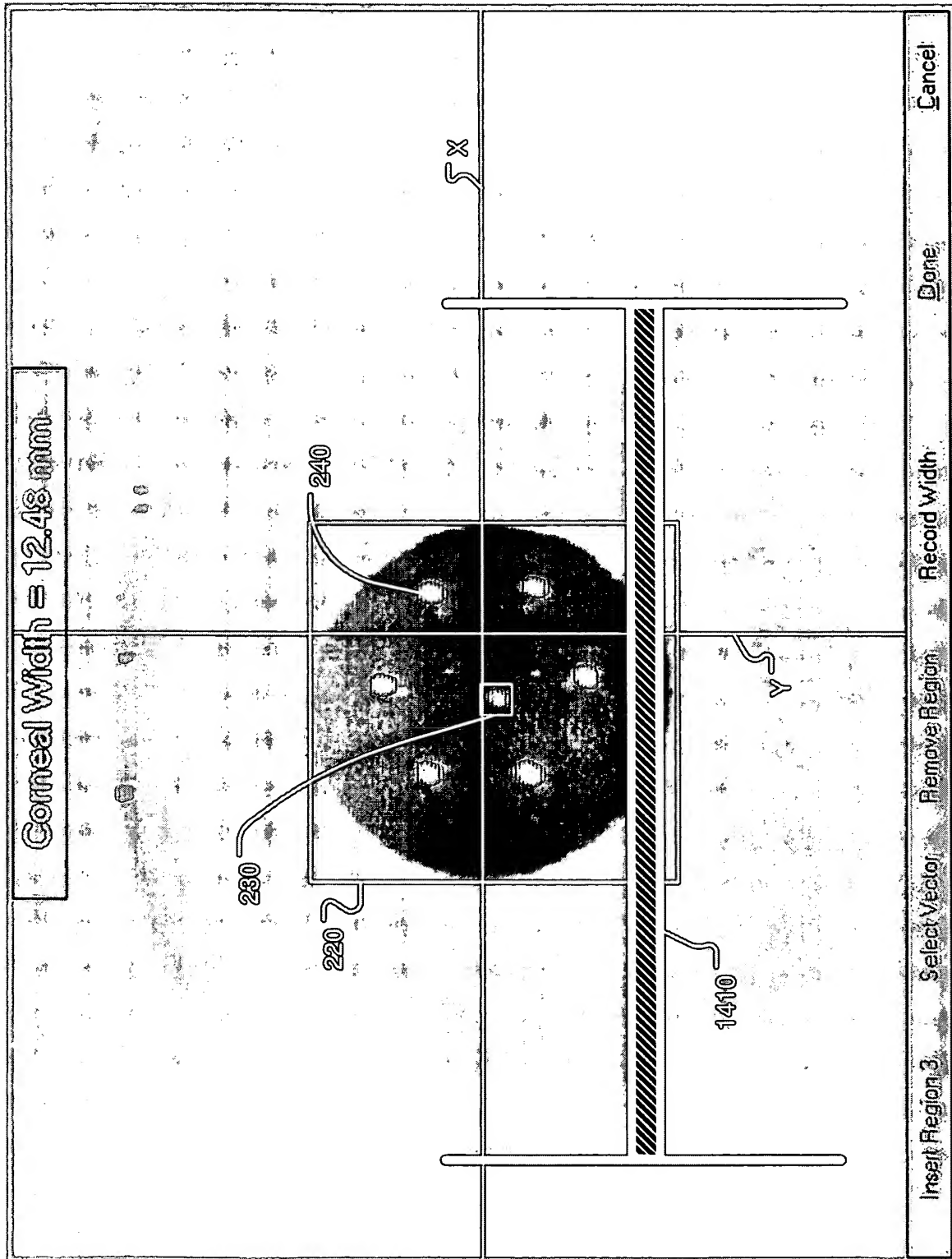


FIG. 14

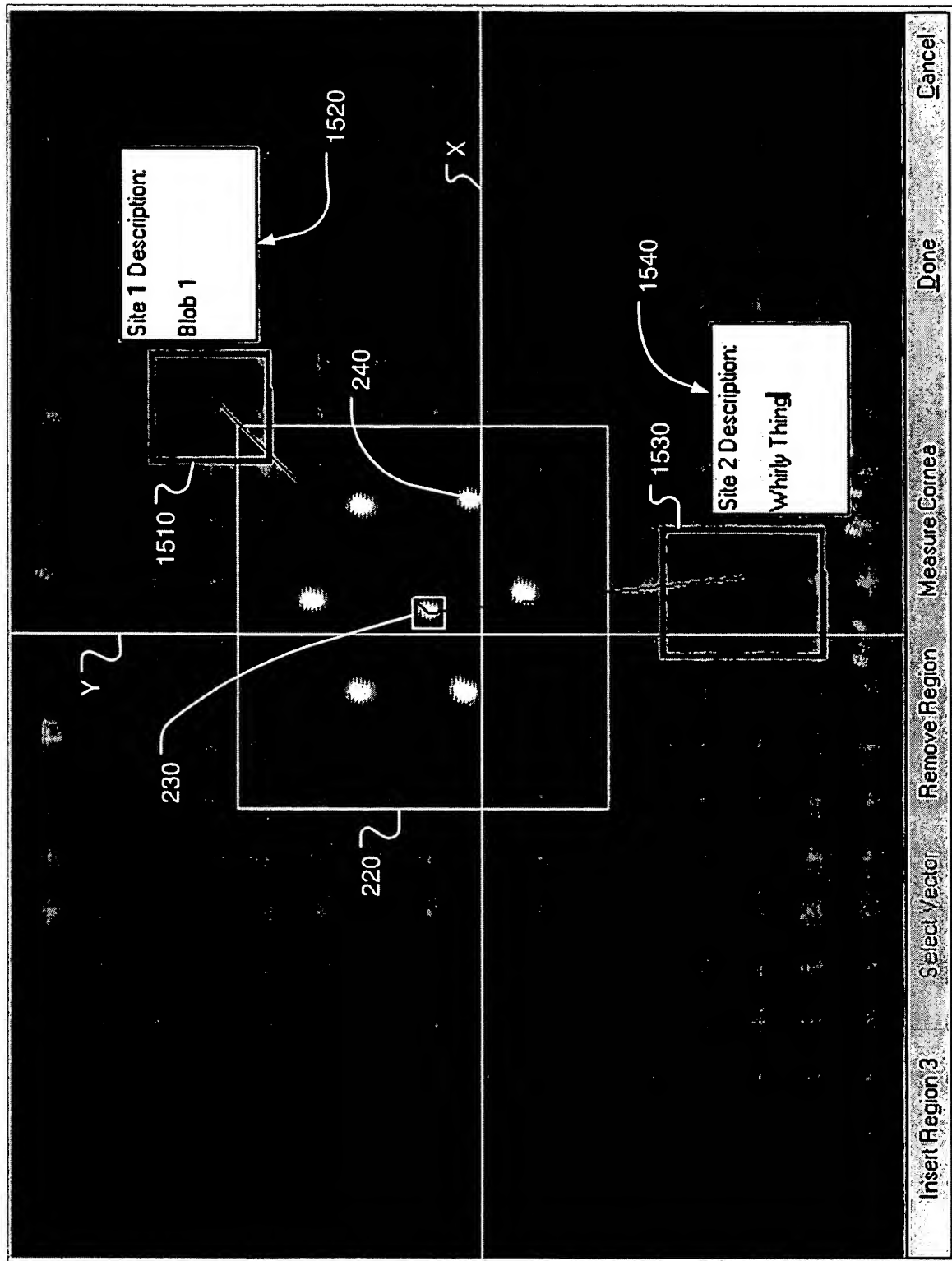


FIG. 15

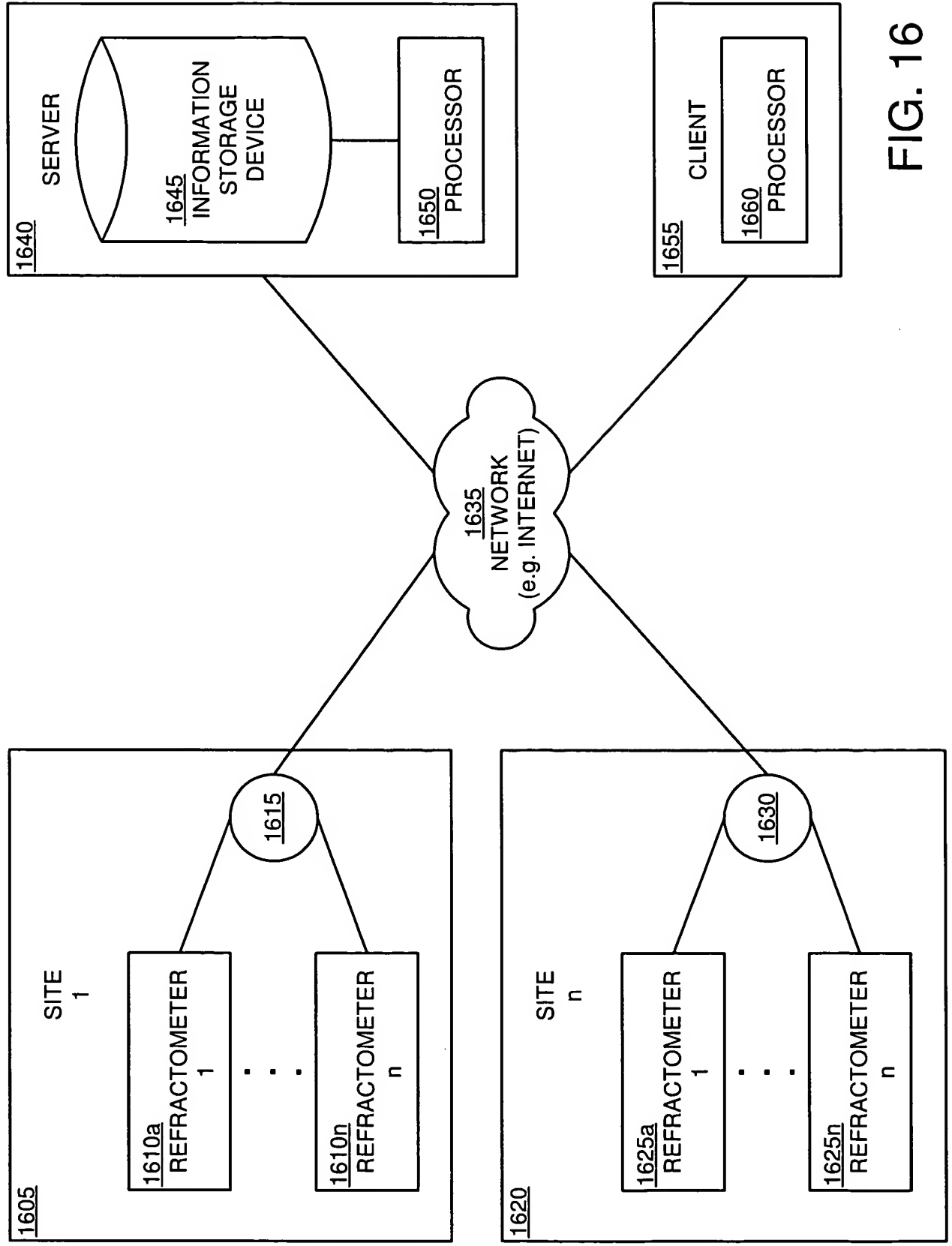


FIG. 16

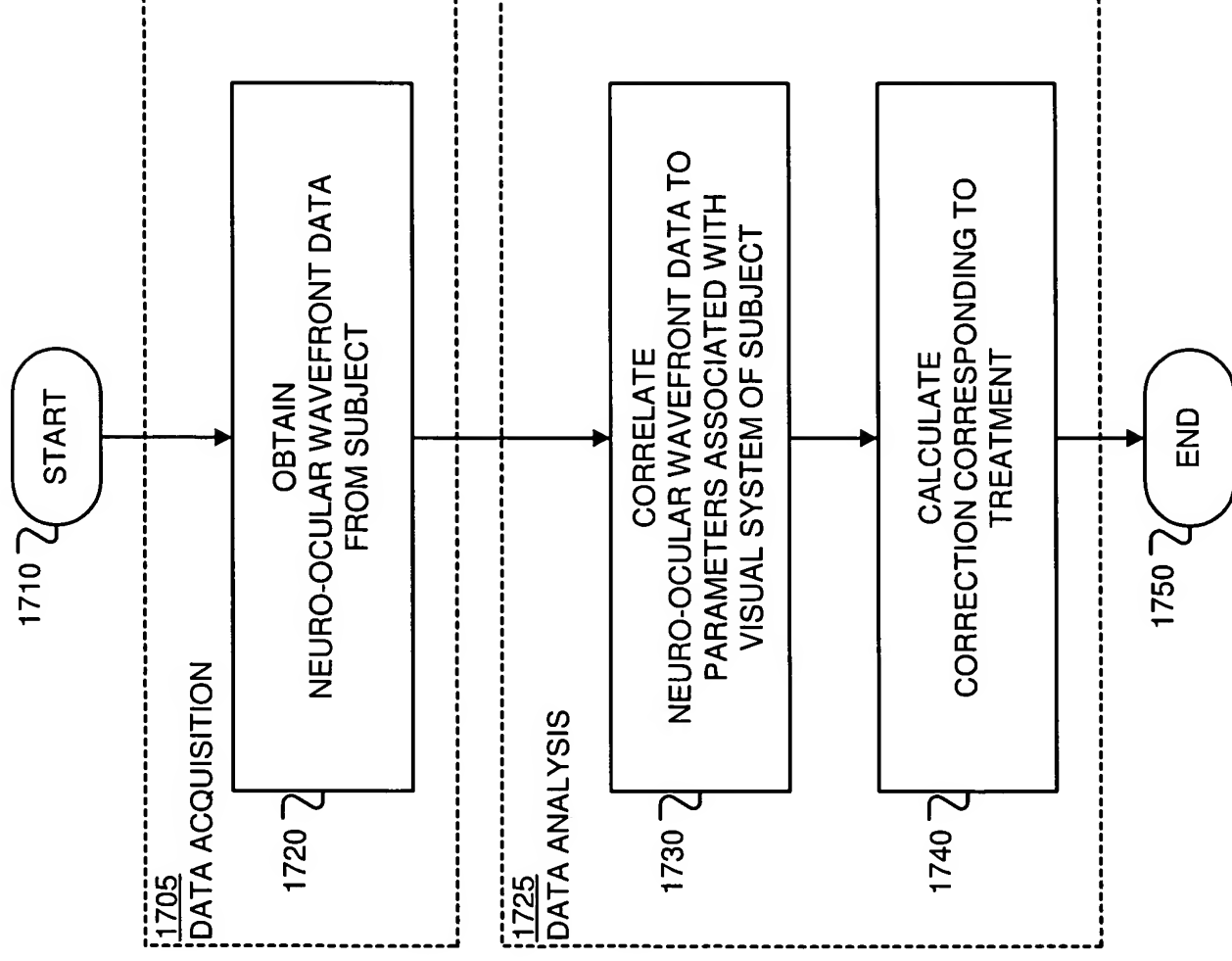


FIG. 17

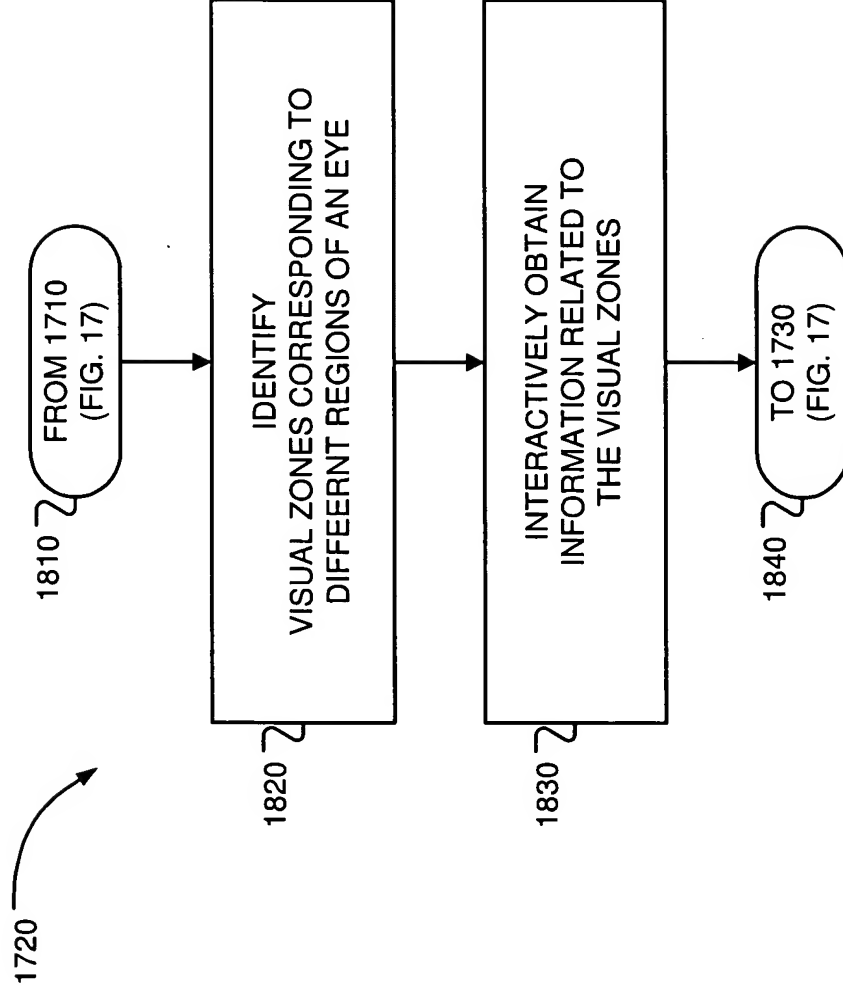


FIG. 18

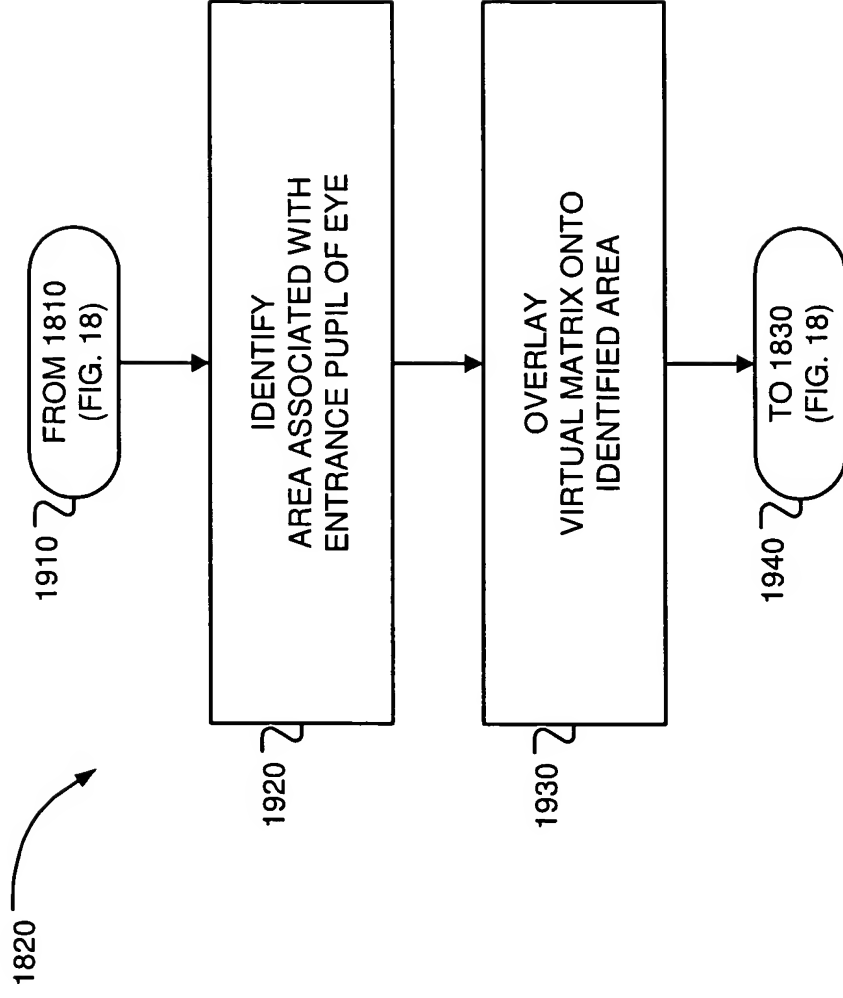


FIG. 19

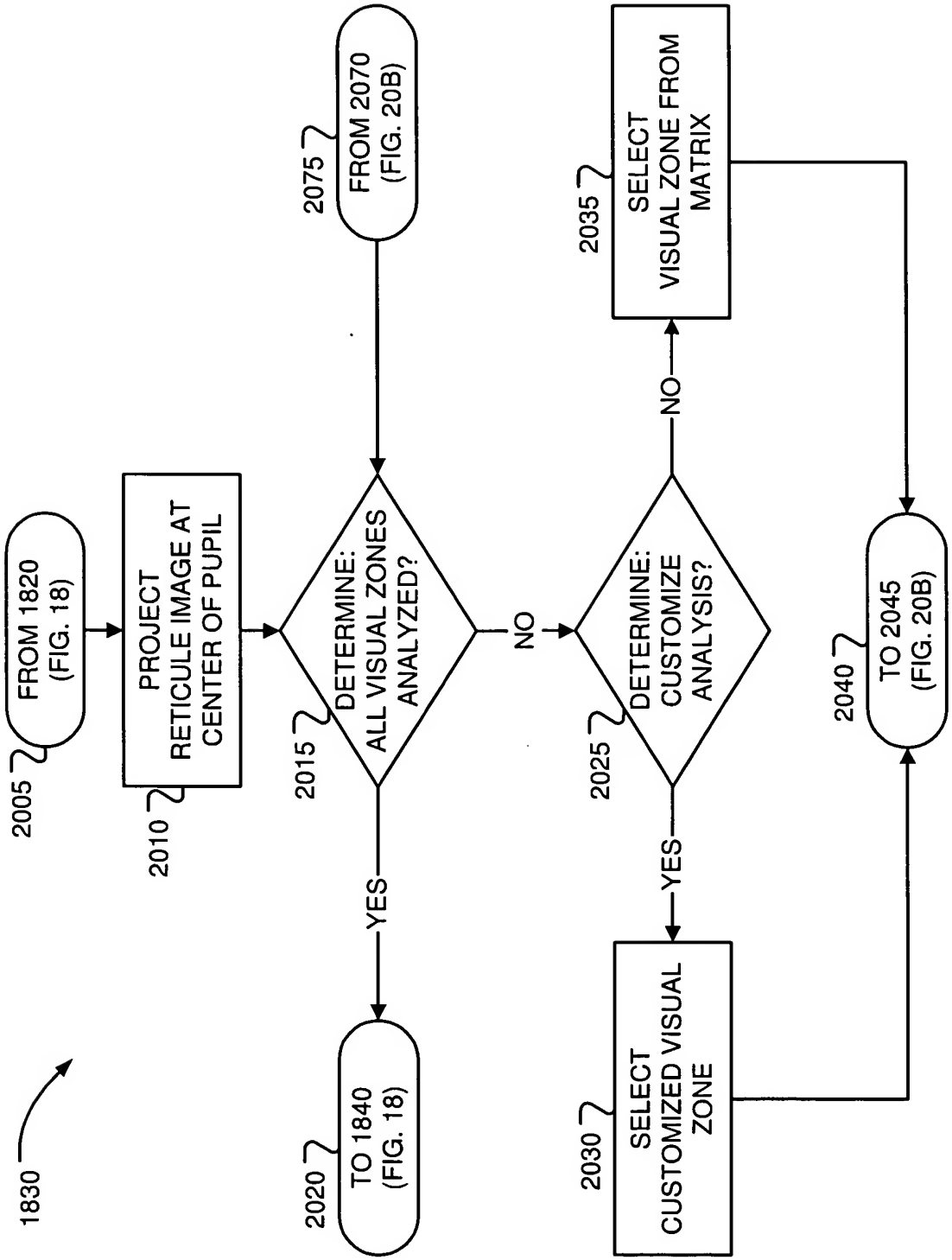


FIG. 20A

1830

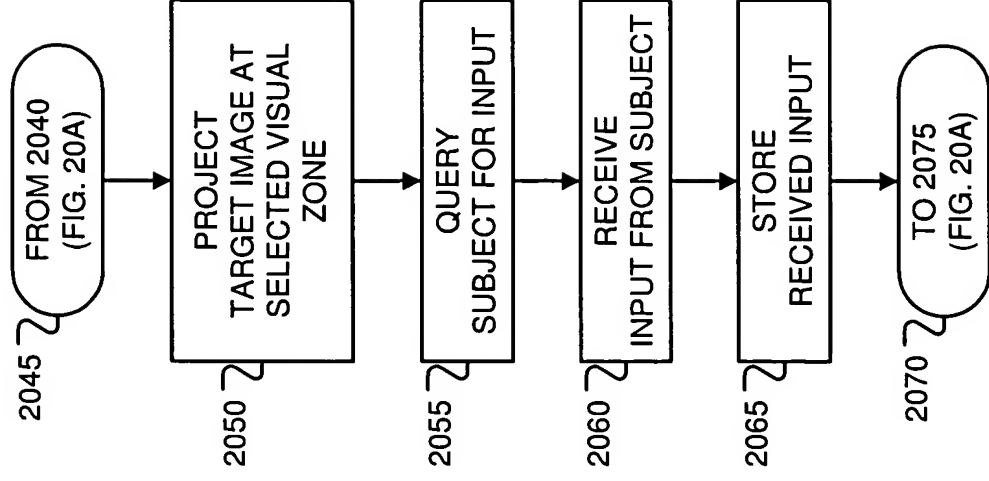


FIG. 20B

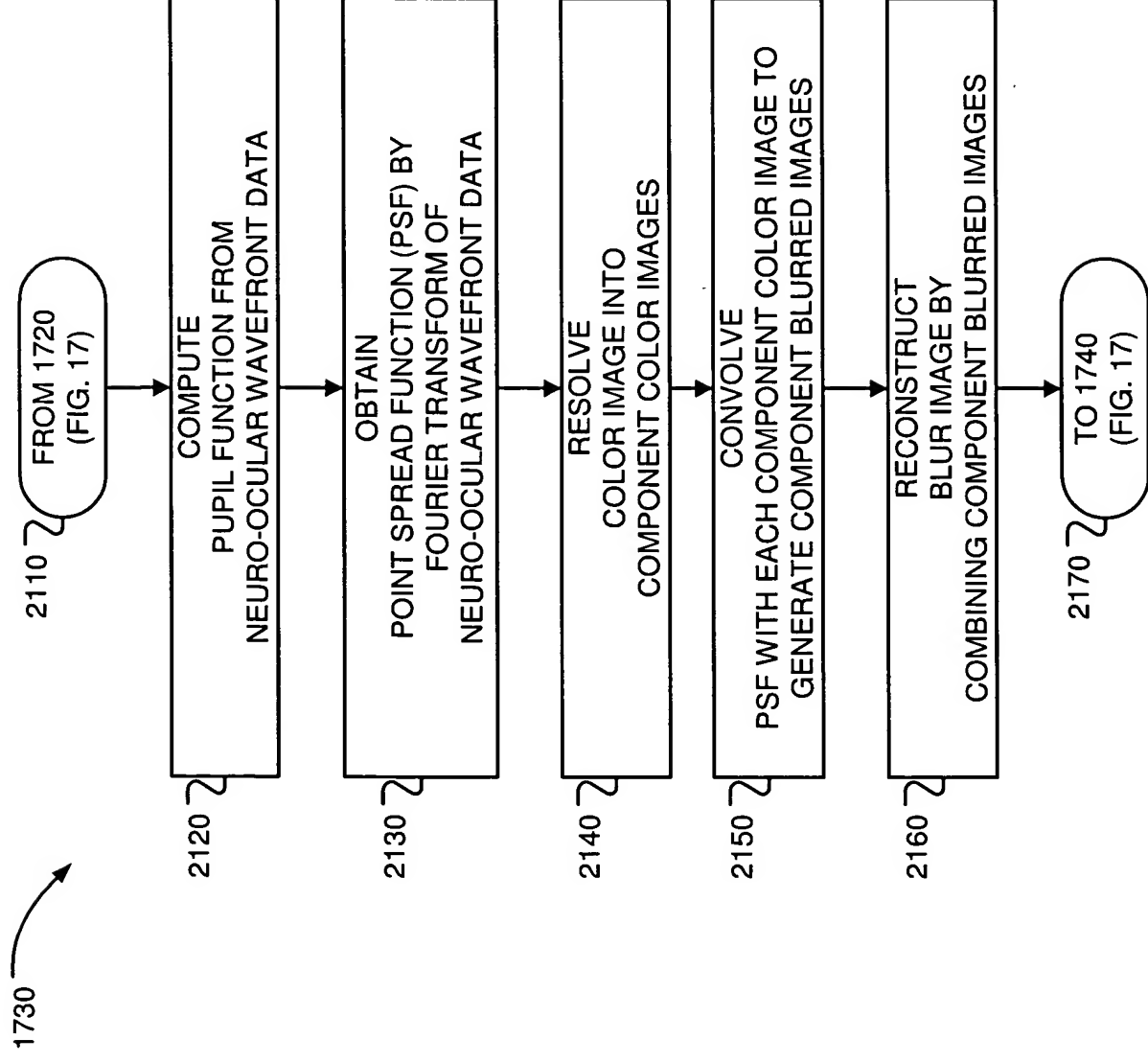


FIG. 21

1725

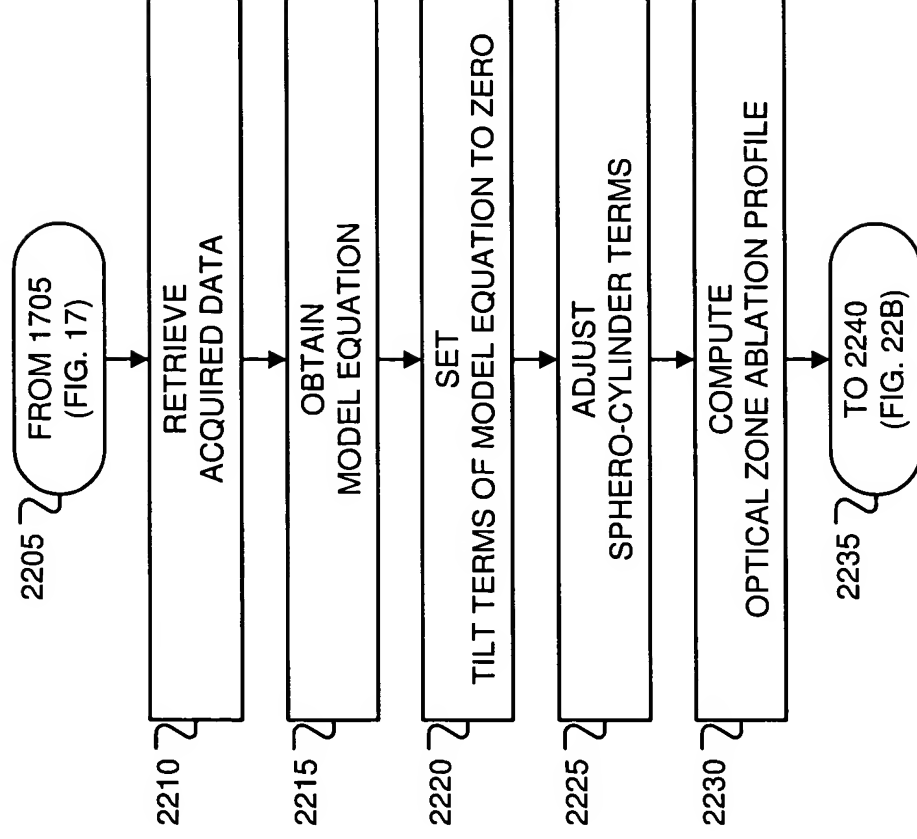
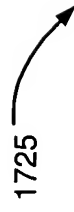


FIG. 22A

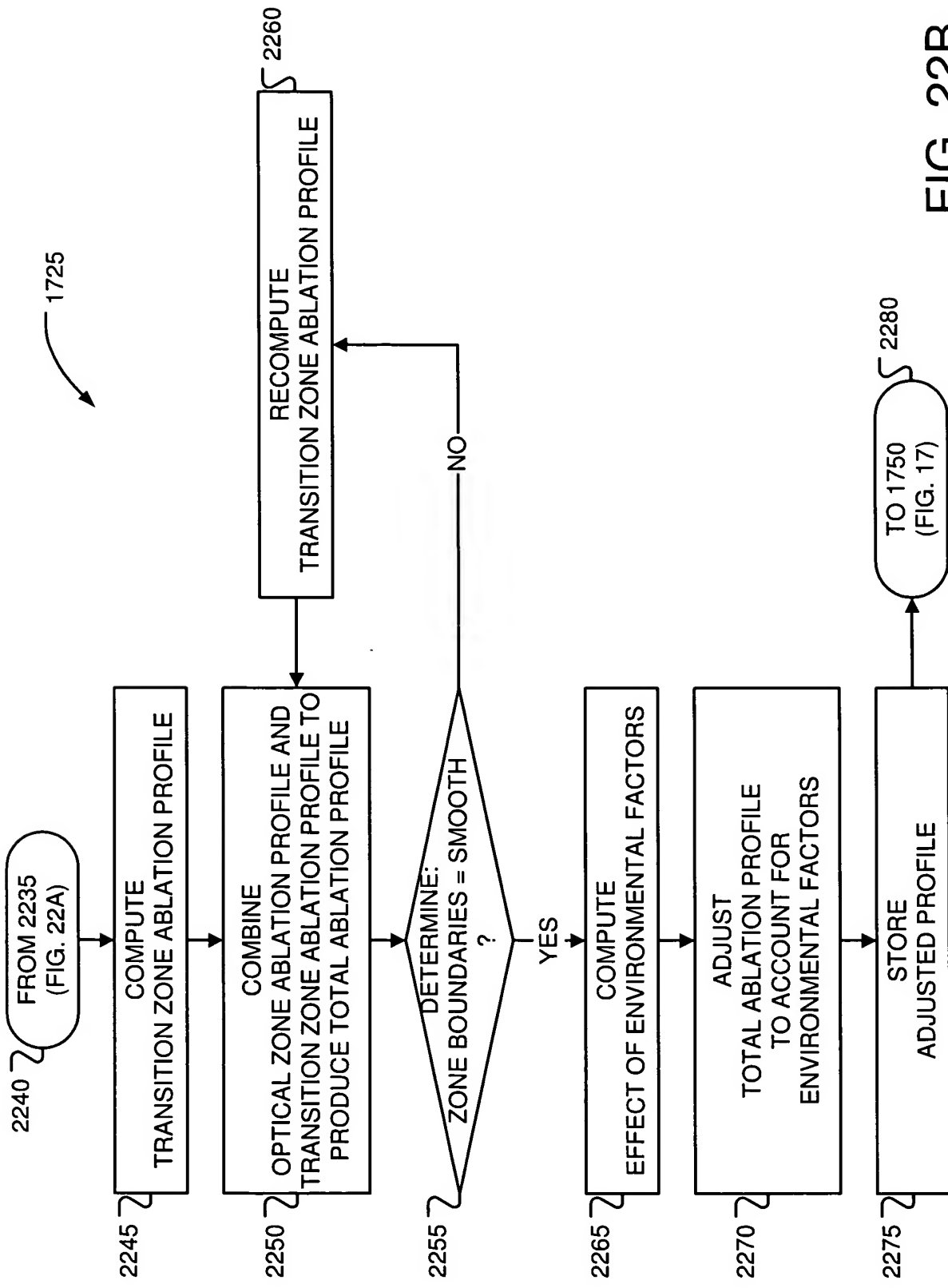


FIG. 22B

1725

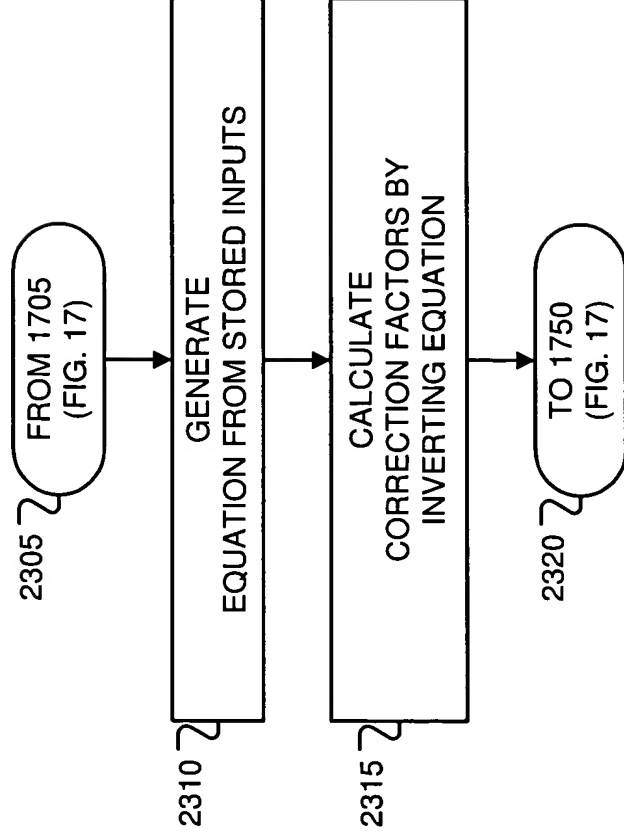
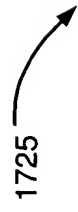
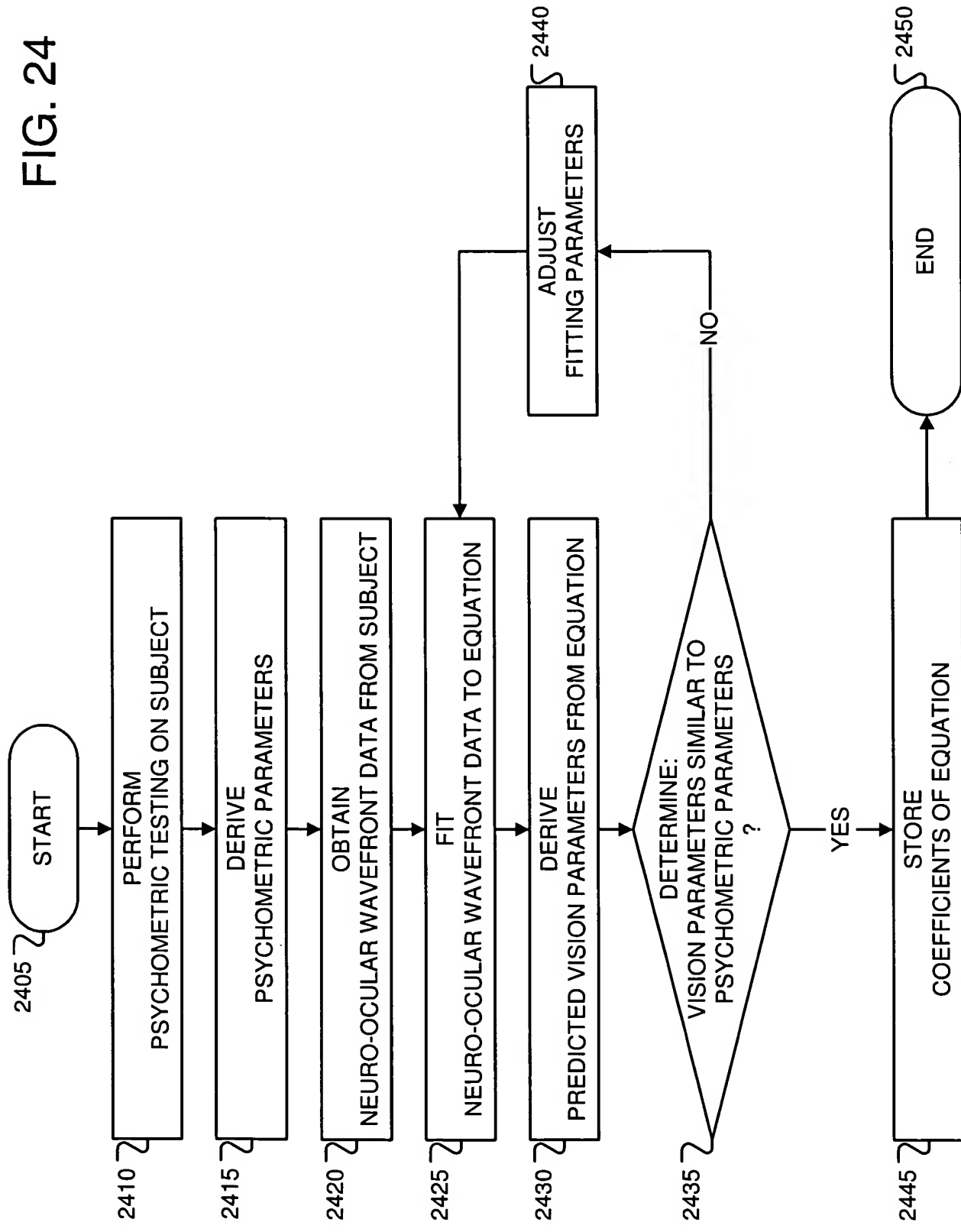


FIG. 23

FIG. 24



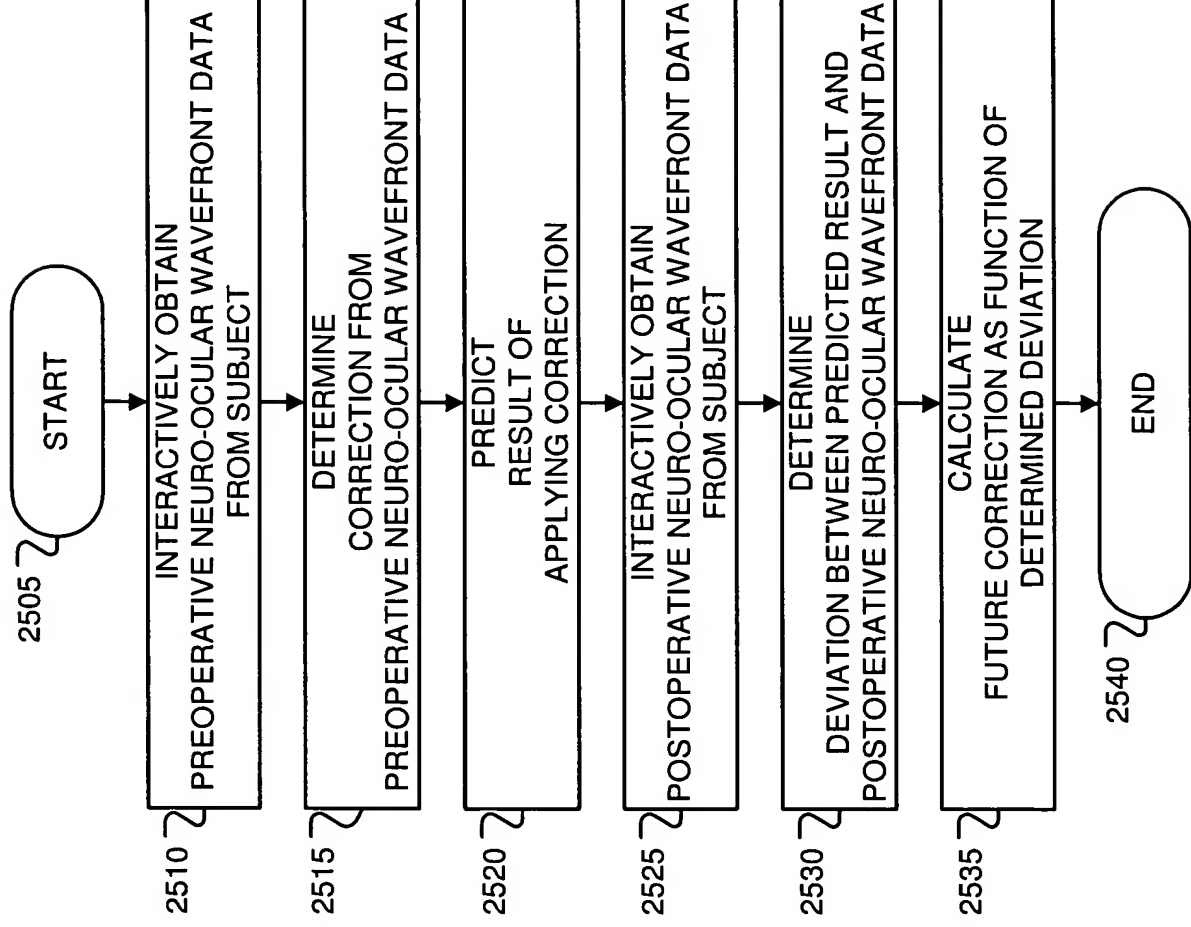


FIG. 25

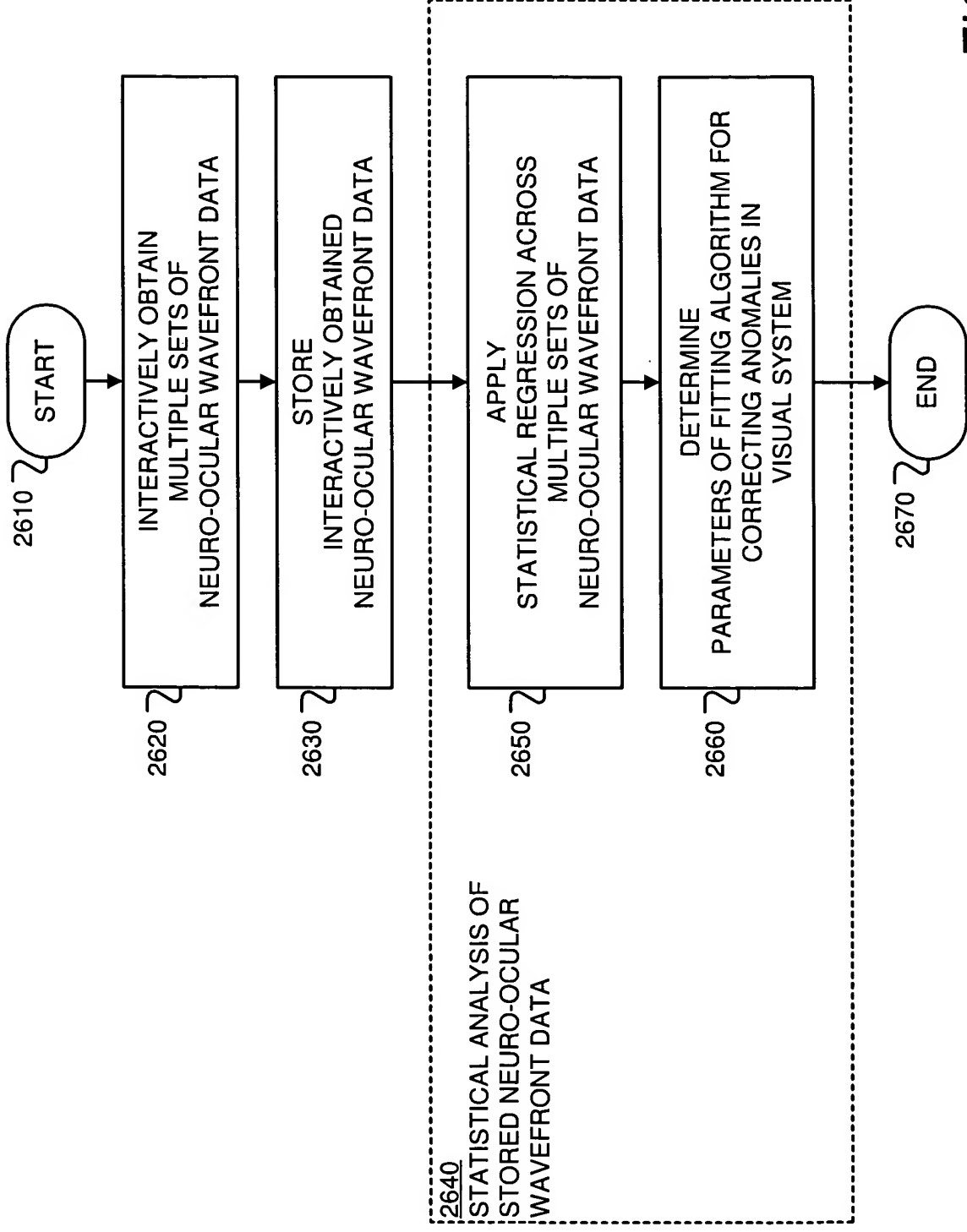


FIG. 26

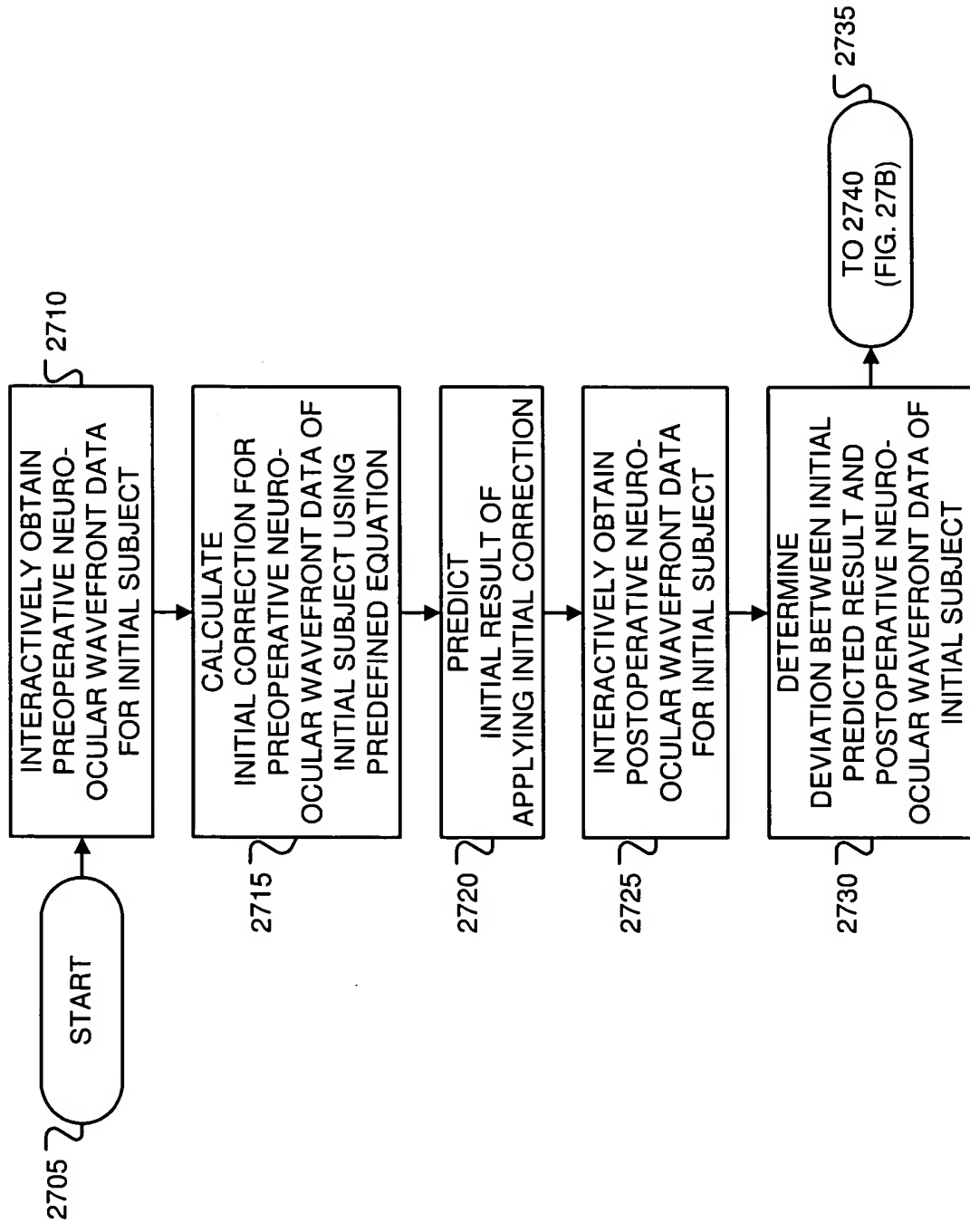
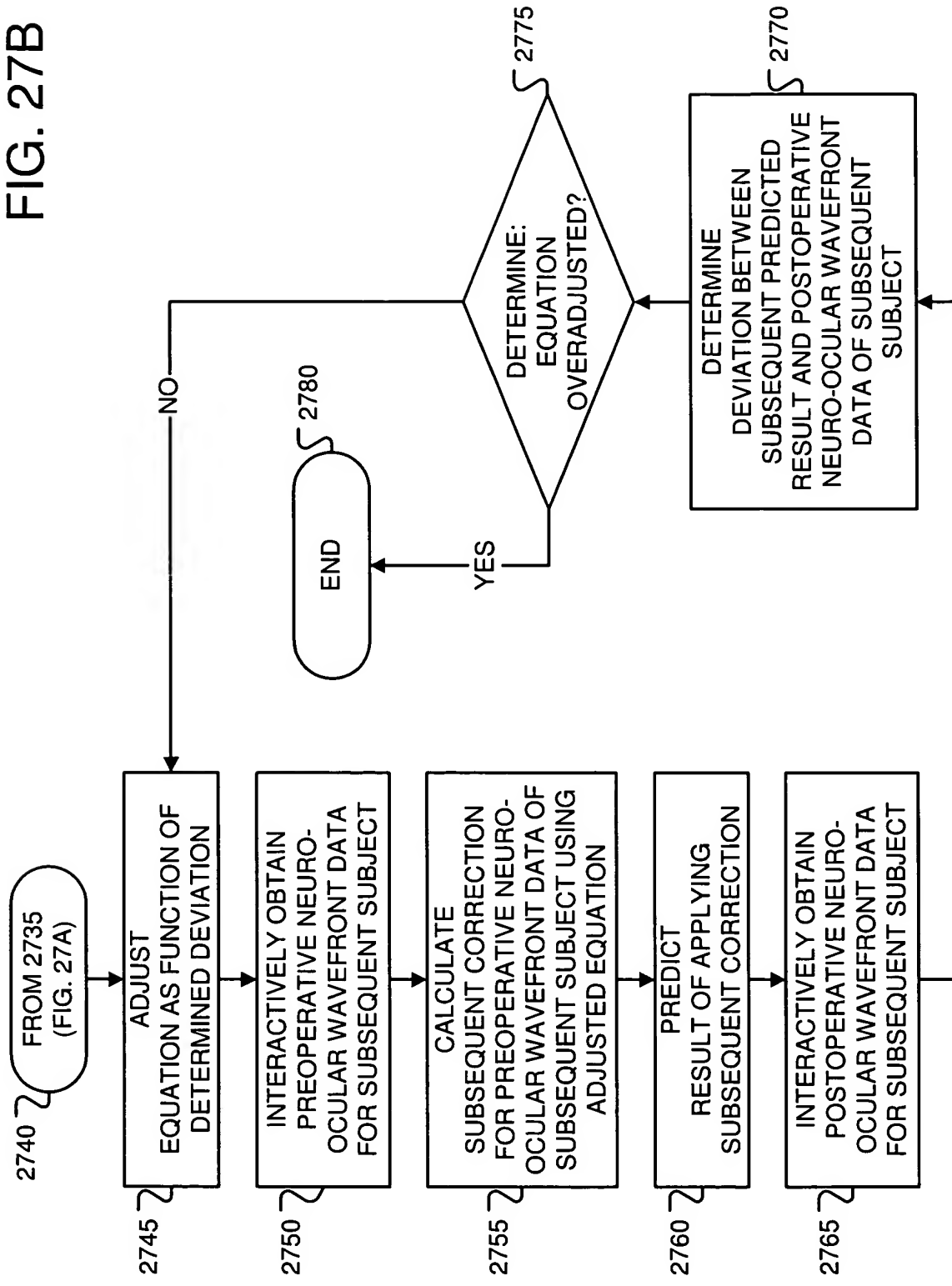


FIG. 27A

FIG. 27B



Column	Variable Name	Definition
1	Point ID	A unique point identifier that describes the location of the point in the pupil sampling map. The point (0,0) is given a Point ID of 0.
2	X coordinate (mm)	Horizontal location in entrance pupil where the acquisition occurred.
3	Y coordinate (mm)	Vertical location in entrance pupil where the acquisition occurred.
4	dx (milliradians)	Horizontal compensation measurement to nullify wavefront error at (x, y).
5	dy (milliradians)	Vertical compensation measurement to nullify wavefront error at (x, y).

FIG. 28

Variables	Definition
(x, y)	Coordinate system of wavefront measurement with respect to pupillary centroid. $(0, 0)$ corresponds to centroid of pharmacologically dilated pupil in mesopic illumination conditions.
(X, Y)	Coordinate system of ablation profile with respect to corneal vertex. $(0, 0)$ corresponds to corneal vertex.

FIG. 29

Variable Name	Definition
R_{OZ}	Radius of optical zone.
R_{TZ}	Radius of transition zone.
W_{min}	Minimum value of the wavefront error over the optical zone area (the most negative value).
D_{Mes}	Diameter of the natural pupil under mesopic illumination conditions.
D_{Dil}	Diameter of the pharmacologically dilated pupil under mesopic illumination conditions.
η	Ablation rate efficacy factor, $\eta = 1.0$ (for corneal tissue), $\eta \approx 0.3$ (for polymethylmethacrylate, PMMA).
r	Radius from the pupillary centroid to the point (X,Y) , $r = \sqrt{x^2 + y^2}$.
n_c	Index of refraction of cornea ($n_c = 1.3771$), according to reference 4.

FIG. 30

Emory Vision Term Index	Zemax Term Number	OSA Term Number (Thibos, et. al.)	Zernike Function Term = $F_n(\rho, \theta)$
Unused	1	0	1
1	2	2	$4^{1/2}(\rho) * \cos(\theta)$
2	3	1	$4^{1/2}(\rho) * \sin(\theta)$
3	6	5	$6^{1/2}(\rho^2) * \cos(2\theta)$
4	4	4	$3^{1/2}(2\rho^2 - 1)$
5	5	3	$6^{1/2}(\rho^2) * \sin(2\theta)$
6	10	9	$8^{1/2}(\rho^3) * \cos(3\theta)$
7	8	8	$8^{1/2}(3\rho^3 - 2\rho) * \cos(\theta)$
8	7	7	$8^{1/2}(3\rho^3 - 2\rho) * \sin(\theta)$
9	9	6	$8^{1/2}(\rho^3) * \sin(3\theta)$
10	14	14	$10^{1/2}(\rho^4) * \cos(4\theta)$
11	12	13	$10^{1/2}(4\rho^4 - 3\rho^2) * \cos(2\theta)$
12	11	12	$5^{1/2}(6\rho^4 - 6\rho^2 + 1)$
13	13	11	$10^{1/2}(4\rho^4 - 3\rho^2) * \sin(2\theta)$
14	15	10	$10^{1/2}(\rho^4) * \sin(4\theta)$
15	20	20	$12^{1/2}(\rho^5) * \cos(5\theta)$
16	18	19	$12^{1/2}(5\rho^5 - 4\rho^3) * \cos(3\theta)$
17	16	18	$12^{1/2}(10\rho^5 - 12\rho^3 + 3\rho) * \cos(\theta)$
18	17	17	$12^{1/2}(10\rho^5 - 12\rho^3 + 3\rho) * \sin(\theta)$
19	19	16	$12^{1/2}(5\rho^5 - 4\rho^3) * \sin(3\theta)$
20	21	15	$12^{1/2}(\rho^5) * \sin(5\theta)$
21	28	27	$14^{1/2}(\rho^6) * \cos(6\theta)$
22	26	26	$14^{1/2}(6\rho^6 - 5\rho^4) * \cos(4\theta)$
23	24	25	$14^{1/2}(15\rho^6 - 20\rho^4 + 6\rho^2) * \cos(2\theta)$
24	22	24	$7^{1/2}(20\rho^6 - 30\rho^4 + 12\rho^2 - 1)$
25	23	23	$14^{1/2}(15\rho^6 - 20\rho^4 + 6\rho^2) * \sin(2\theta)$
26	25	22	$14^{1/2}(6\rho^6 - 5\rho^4) * \sin(4\theta)$
27	27	21	$14^{1/2}(\rho^6) * \sin(6\theta)$
28	36	35	$16^{1/2}(\rho^7) * \cos(7\theta)$
29	34	34	$16^{1/2}(7\rho^7 - 6\rho^5) * \cos(5\theta)$
30	32	33	$16^{1/2}(21\rho^7 - 30\rho^5 + 10\rho^3) * \cos(3\theta)$
31	30	32	$16^{1/2}(35\rho^7 - 60\rho^5 + 30\rho^3 - 4\rho) * \cos(\theta)$
32	29	31	$16^{1/2}(35\rho^7 - 60\rho^5 + 30\rho^3 - 4\rho) * \sin(\theta)$
33	31	30	$16^{1/2}(21\rho^7 - 30\rho^5 + 10\rho^3) * \sin(3\theta)$
34	33	29	$16^{1/2}(7\rho^7 - 6\rho^5) * \sin(5\theta)$
35	35	28	$16^{1/2}(\rho^7) * \sin(7\theta)$

FIG. 31